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W
Luis Sancho
Walter L. Wagner
PO Box 411
Honomu, HI 96728
808-964-5535
pro se

FILED IN THE
UNITED STATES DISTRICT COURT
DISTRICT OF HAWAII

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IN THE UNITED STATES DISTRICT COURT
DISTRICT OF HAWAII

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LUIS SANCHO, et al.,)	Civil No. CV08-00136 HG
Plaintiffs,)	AFFIDAVIT OF WALTER L.
vs.)	WAGNER IN SUPPORT OF
US DEPARTMENT OF ENERGY, et al.,)	PERMANENT INJUNCTION
Defendants.)	RE DEFENDANT CERN
)	Hon. Helen Gillmor

AFFIDAVIT OF WALTER L. WAGNER IN SUPPORT OF
PERMANENT INJUNCTION RE DEFENDANT CERN

I, Walter L. Wagner, after first being duly sworn, affirm, state and declare under penalty of perjury of the laws of the State of Hawaii as follows:

1. I have read the declarations provided by Bruce. P. Strauss and Morris Pripstein, scientists associated with the federal defendants herein, as well as the declarations of Dennis Kovar and Joanna M. Livengood, administrators associated with the federal defendants herein. In reading through the declarations I find that they are riddled with inconsistencies and falsehoods, all of which negate the conclusions they seek to reach in their declarations that the LHC would be safe and in compliance with applicable rules and regulations.
2. In that both Dr. Strauss and Dr. Pripstein have excellent credentials in physics, and both predate my experience¹ in physics by several years, I will address my statements primarily to their declarations, and not the declarations of Mr. Kovar and Ms. Livengood. I also note that Dr. Strauss has co-authored a half-dozen papers on searches for magnetic monopoles, which parallels my research during that same era [roughly 1973-1975], which searches on my part resulted in the announcement of

¹ Dr. Strauss' Resume indicates he finished his undergraduate degree in 1964 (at age 22), and Dr. Pripstein's Resume indicates he finished his undergraduate degree in 1957 (at age 22), whereas I did not finish my undergraduate degree until 1972 (at age 22).

the discovery of a magnetic monopole in peer-reviewed publications, and which discovery has neither been refuted, nor re-confirmed by additional discovery².

3. I have read tens of thousands of science articles from peer-reviewed publications in physics, conducted cosmic ray physics experiments at UC Berkeley which resulted in numerous peer-reviewed publications, worked in nuclear physics and nuclear safety for the US government in the capacity of a Radiation Safety Officer associated with nuclear medicine and health physics under the auspices of the Department of Energy³, Nuclear Regulatory Commission, and Veterans Administration, and taught physics and mathematics⁴ at various colleges and grade schools, over the course of many years. I remain active in astrophysics and cosmology research, and continue membership in the Health Physics society and Society of Nuclear Medicine.

² The announcement by Blas Cabrera at Stanford University in 1978 of detecting a magnetic monopole is not considered confirmatory due to inability to repeat.

³ The former Atomic Energy Commission originally had jurisdiction over all U.S. nuclear work. This agency was dissolved in the 1970s, and two new agencies formed in its place, namely the Department of Energy and the Nuclear Regulatory Commission, to handle those functions, with the research laboratories and nuclear weapons research going to the Department of Energy, and the civilian reactor program going to the Nuclear Regulatory Commission. I was responsible for enforcing nuclear regulations from both agencies, under the umbrella of the U.S. Veterans Administration.

⁴ Also taught were allied sciences in chemistry and biology.

Statements Regarding Funding and CERN Relationship

4. Contrary to the false statements and assertions by the government defendants that all government funding of the LHC has ceased, I note in the declaration of Dr. Strauss, in his Attachment 9, that funding for the LHC for FY 2007 is set at \$56,820,000.00, for FY 2008 is set at \$63,622,000.00, and for FY 2009 is set at \$72,450,000.00. This funding and anticipated funding shows that someone is lying, or deliberately misrepresenting the facts, with regard to the false assertions made by the government defendants that no further funding for the LHC is being made or planned, and that funding has been completed. In particular, on its "page 245" it reads in pertinent part:

"The U.S. LHC effort is one of the highest priority components of the HEP [high energy physics] program, endorsed repeatedly by HEPAP, and by the recent National Academy of Sciences study (EPP2010). With the LHC turn-on occurring in 2008, the U.S. LHC program, jointly supported by the DOE and NSF, will be in a critical phase in FY 2009. An increase of almost 14% in DOE support above FY 2008 is planned. This includes increased costs for Fermilab direct program support. The main use of the resources will be for LHC software and computing, and pre-operations and maintenance of the U.S.-built systems that are part of the LHC detectors. The U.S. also participates in accelerator commissioning and accelerator physics studies using the LHC, along with R&D for potential future upgrades to both the machine and the detectors. Most of the increase in FY 2009 funding is for accelerator R&D aimed at supporting LHC upgrades. With first data anticipated in 2008, a high priority will be on the ramp-up of operations in FY 2009."

[bracket insert added for clarity; underlining added for emphasis]

5. The above statements, quoted from Dr. Strauss' declaration given under penalty of perjury, indicates to me that the government defendants are attempting to work a fraud upon this Court in seeking to lead it to believe that all funding has been completed, and that there is nothing for this Court to enjoin with respect to the government defendants. The above statement also shows the continuing partnership relationship between the government defendants and defendant CERN, and shows that that partnership relationship has not terminated, but continues in full force and effect.

6. Dr. Strauss' Attachment 4 ["International Cooperation Agreement"; hereinafter Agreement], which is the Agreement between CERN and the government defendants, details the partnership relationship between CERN and the government defendants, in which the US government is a partner in the CERN alliance of member states. Specifically, it reads on page 5 [Article VII – Involvement of U.S. Party] as follows:

"7.1 The United States, represented by the U.S. Party, shall become an Observer at the CERN Council. As an Observer to the Council, the U.S. Party will receive the same information as Delegates to the CERN Council

concerning progress of the LHC project, including regular reports from the Science Policy Committee, and reports from the Director General based on recommendations from the Machine Advisory Committee and the LHC Committee. This will allow the U.S. Party to closely monitor the progress of the LHC activities and participate in all major decisions which will impact the U.S. contributions.

...

- 7.4 The U.S. Party shall be a full member of the ATLAS and CMS Resource Review Boards.
- 7.5 DOE shall be invited to appoint a member of the LHC Board when that body is created."

[underlining added for emphasis]

7. While Dr. Strauss' elaboration upon the above in his own declaration on pages 4 and 5 attempts to 'minimize' the U.S. role, the fact remains that the U.S. sits on the CERN Council, obtains all of the information provided to the other member states, and actively participates in all major decisions which impact the U.S. involvement, which for practical purposes, means all decisions related to the construction and commissioning of the LHC and the two experimental chambers at the LHC funded by the government defendants out of the six experimental chambers total. To believe otherwise would be

totally naive, and contrary to both the spirit and the letter of the Agreement.

Statements Regarding Physics at the LHC

8. Both Dr. Strauss and Dr. Pripstein attempt to assure this Court that the plaintiffs' concerns are "speculative". However, physicists use the term "speculative" in an entirely different manner than lawyers. To a lawyer, the term "speculative" usually means "extremely unlikely". To a physicist, the term "speculative" means that which is possible and not necessarily invalid, but not proven to be true either.

9. Under that definition, the LHC is built entirely for speculative purposes. It is speculative whether any new physics will be learned from the LHC, it is speculative whether or not a "Higgs Boson" will be manifested, it is speculative whether or not a "quark gluon plasma" will form, it is speculative whether or not magnetic monopoles will be produced, it is speculative whether or not micro black holes will be produced, and it is speculative whether a quark gluon plasma will recombine into a new kind of atom [strangelet]. That is what high energy physics does – speculate on what new states of matter might be creatable.

10. These speculative purposes are summed up in Dr. Strauss' Attachment 8, page 3, under Mission Need, in which it is speculated that the LHC will answer questions as to how different particles acquire their mass, "what explains their bizarre pattern of masses", and whether various underlying theories might be able to be unified in a "Grand Unified Theory" or a "Theory of Everything".

11. These speculative theories have been given extensive credence in the physics community as being plausible speculative scenarios of new particle creation. This has resulted, for example, in numerous [unsuccessful] scientific searches at lower-energy accelerators that replicate nature, and in nature, for particles such as strangelets and magnetic monopoles. Currently planned in the scientific literature and at the LHC detectors are speculative searches for magnetic monopoles, for strangelets, and for micro black holes, among other speculative particles that might be created.

12. Not until the recent past, long after construction of the LHC commenced, did scientific interest develop in some of the adverse scenarios associated with some of these speculative particles, in particular the strangelet scenario and the micro black

hole scenario. That is in large part due to certain errors that were developed in previous safety studies.

13. My associates and I pointed out those errors to CERN in correspondence to CERN in 2007, resulting in the necessity for a new safety study. That new safety study by CERN commenced shortly thereafter, and was only recently released as the LSAG Report.

14. The LSAG Report acknowledges that I and my associates were correct in our previous criticisms of previous safety studies. However, the LSAG Report now also has errors in its report, which errors completely undermine the basis for the conclusion of "no risk". Those errors are currently being addressed in an article being prepared by associates of mine for publication in a major science journal. These associates have previously been extensively published in peer-reviewed literature in related science fields. Their submission is expected to undergo peer-review shortly, prior to publication in the scientific literature.

15. One of the criticisms of the LSAG Report relates not to the physics errors [which are addressed as well], but to the structure of the LSAG committee, which consisted of five persons, all of whom are current or past employees of CERN, and not independent. This

lack of independence serves to seriously bias the report towards a finding of "no risk" and to overlook scenarios that independent scientists would examine.

16. The LSAG report acknowledges that the previous cosmic ray argument, used previously by CERN in support of safety, was faulty and erroneous. However, it purports to utilize two new cosmic ray arguments to assure safety. Those two new arguments, however, are also subject to attack as being invalid for a variety of reasons, which are being detailed in the article being prepared for publication.

17. The idea that one can liberate up and down quarks⁵, while creating strange quarks by converting energy into matter by the reverse-process of Einstein's famous equation relating mass and energy as being equivalent, is not new. The idea that these quarks, once liberated into a 'soup' of quarks and gluons, might rearrange into a new kind of atom called a strangelet is not new, and was developed more than 20 years ago. Searches for strangelets, in

⁵ The protons and neutrons that make up the nuclei of atoms have been shown to be made from "up" and "down" quarks, and are bound together by "gluons". Liberating them, by high-energy collisions, produces a 'soup' of particles called a "quark-gluon plasma", which is a super-fluid of those quarks, as well as other quarks that are generated in energetic collisions such as strange quarks.

nature and at lower energy accelerators, have been ongoing for more than a decade, without success. It is not known how many strange quarks would have to be generated in order to produce the stability necessary to create this new kind of atomic nucleus [strangelet], but it is believed that the LHC might achieve what lower-energy accelerators have not done, and thus numerous proposed searches for strangelets are published in the scientific literature and are proposed for the LHC.

18. However, what is new is that the LHC will have far more energy available for strange quark production than anything ever done before, by about one-hundred fold compared to the RHIC and Fermilab's Tevatron.

19. The current LSAG safety study equates this as being safe due to the impact of high-speed protons [cosmic rays] on the moon with Lead nuclei lying on the surface of the moon [which is what a natural, rare, high-energy cosmic ray impact on the moon is]. They argue that this is essentially the same as two Lead nuclei colliding head-on at the LHC. However, they are fundamentally different.

20. In nature, all high-energy cosmic rays ever measured are protons, or possibly Helium nuclei [two protons and two neutrons]. In

striking a Lead nucleus on the moon, they would drill a small hole through the nucleus, while most of the quarks of the nucleus would be relatively unaffected. By colliding two Lead nuclei into each other at the LHC, all of the quarks from both nuclei would be affected, liberating them and adding large numbers of strange quarks to the mixture, producing a fertile breeding ground for the creation of a strangelet due to the strong stabilizing influence of strange quarks. This fundamental difference between those two modes of collision is not discussed in the LSAG, and the LHC-mode and the cosmic-ray-mode are simply lumped together as being 'equivalent' without discussion, evidence, or logical connection.

21. In actuality, it appears quite likely that the LHC would be capable of creating a strangelet, whereas such is not created in nature [resulting in the fruitless searches in the past]. Such strangelets would be almost certainly extremely dangerous. In existing theory, they have the capability of fusing with normal atoms, releasing energy in the process. While this might sound like a promising idea for energy production, there is no ability to stop the fusion process once it has started.

22. Unlike a fusion bomb, which fuses light-weight atoms [such as Hydrogen] continuously until it runs out of the fuel used to make the bomb [resulting in a modest burst of energy, or explosion], a strangelet would not run out of fuel until it fused all of the normal atoms of Earth. This is due to strangelet theory which shows that strangelets are more stable than the most stable of normal atoms, and that the stability of such a growing "strange atom" would continue to increase as it grew larger and larger.

23. While previous safety studies, as well as the LSAG report, rely upon the electric charge of a strangelet to keep it from fusing with normal atoms, this is uncertain. The much greater theoretical fusion potential of a strangelet, compared to a normal atom, is almost certainly likely to be able to overcome that barrier. Again, that aspect of fusion by strangelets was not discussed in the LSAG report, again showing the bias of the authors.

24. Also, the LSAG report relies upon a "neutron star" cosmic ray argument to reach its conclusion of safety [instead of its earlier, invalid cosmic ray argument]. It argues that the LHC would simply replicate that which occurs in nature by high speed cosmic rays that impact Earth. It relies upon the fact that we observe "neutron stars"

in the aftermath of a supernova. It argues that such "neutron stars" would be eliminated by microblackholes impacting the "neutron star" following their creation by cosmic rays, if such high-energy impacts created dangerous micro black holes. However, since we see some "neutron stars", they argue that the underlying premise is therefore false, and micro black holes, if created, would therefore be safe.

25. Again, however, the argument is faulty from several points of view. It wrongly assumes that cosmic rays can strike the surface of a "neutron star", even though they are highly shielded by large magnetic fields. It wrongly assumes that the estimated ages of "neutron stars" are accurate, when recent advances in that field show the ages are very uncertain, and much younger than previously believed. And, it wrongly assumes that neutrino-like relativistic micro black holes would be stopped by a "neutron star" without any empirical evidence, and when theory suggests otherwise.

26. Those faults, and others, are being more thoroughly discussed in the article being prepared for publication by my associates, and will be discussed in greater detail in the Affidavit I will prepare for the opposition to the government defendants' motion for summary judgment.

27. There are methods that could be employed to overcome the invalidities of the current LSAG report that we have pointed out. For example, a few weeks ago we launched the GLAST satellite, which was a flawless launch by NASA, followed by several weeks of flawless commissioning of the satellite. It is designed to detect gamma ray bursts, and in particular it has the capability of detecting "Hawking Radiation" if such theoretical radiation exists and is emitted from evaporating primordial black holes, as speculated by Dr. Hawking. If this could be proven to be real, rather than mere speculation by the government defendants, then we would know that micro black holes rapidly evaporate, as now speculated by the government defendants, rather than remain stable, as speculated by other physics theories. If they rapidly evaporate, then it would be safe to create them. If they are stable, then it would not be safe to create them. It will take at least 1-2 years of data gathering by the GLAST to be able to answer that question.

28. Likewise, high energy cosmic ray impacts on the moon, or in earth's upper atmosphere, could be searched for "Hawking Radiation" bursts with appropriate detectors placed on the moon, or oriented for detection in earth's upper atmosphere. If such bursts

were detected, then we would know that micro black holes are formed in nature, but rapidly evaporate and are harmless.

29. By the same token, we could also continue ongoing research to detect strangelets in nature. These detectors could be placed on the moon, or on satellites, etc., and if naturally produced strangelets were detected, then we'd know they are safe to be made by mankind as well. While the LSAG report attempts to downplay the likelihood of even creating strangelets, there are in fact active searches for strangelets planned at the LHC as shown by numerous articles I've read by the scientists engaged in the detector designs for strangelet detection.

30. However, until we obtain such empirical evidence, whether from the GLAST satellite, or from new experiments not yet designed to obtain it, it is pure speculation on the part of the government defendants that creation of micro black holes is a safe thing to do, or that creation of this new type of a more stable atomic nucleus, a strangelet, is a safe thing to do.

31. I requested one of my associates, Mr. James Blodgett, to ascertain whether or not defendant DOE prepared any documentation pursuant to NEPA requirements, such as

Environmental Assessments [EA], Findings of No Significant Impact [FNSI], or Environmental Impact Statements [EIS]. He received a response from the office of Mr. Dennis Kovar [one of the government defendants' affiants herein], signed by Alexander Morris, stating that the DOE had prepared no such documents. I am attaching herewith a copy of that letter as my Exhibit "A".

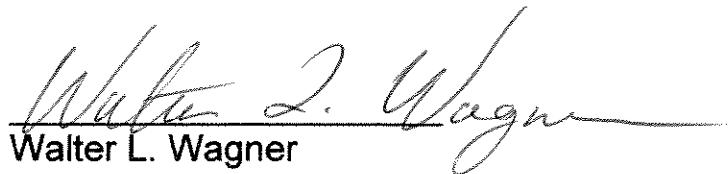
32. In essence, the LHC is essentially a factory that is designed to create new types of matter that have never before existed on Earth, but with no plans for how to contain, or dispose of, this matter, which would be a waste product if it does not spontaneously decay. The release of that waste product into the environment would impact me here in Hawaii, as I am located a mere eight thousand miles from the LHC, which has the potential to turn earth into a very large "strange atom", releasing fusion energy similar to a supernova in the process.

33. WHEREFORE, I respectfully request that this Court issue a judgment by default as against defendant CERN, that plaintiffs be awarded their costs of suit as against defendant CERN, and that this Court continue jurisdiction over CERN to ascertain that they comply with NEPA requirements and European Commission requirements,

and that they undertake all proper procedures, including passive experimentation to obtain empirical evidence supportive of LHC safety, before they are allowed to commission the LHC for collisions .

34. Further, affiant sayeth naught.

Dated: August 4, 2008



Walter L. Wagner
Walter L. Wagner

Subscribed and sworn to before me
this 4th day of August, 2008

Notary Public, State of Hawaii